

Nitrogen and Phosphorus Pollution: EPA's Approach

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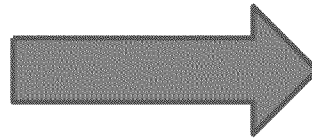
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<http://www.epa.gov/nutrientpollution>

Overview

- Scope of National N and P Pollution Issue
- Why a State N and P Reduction Framework Now?
- What is the EPA Recommended Framework?
- How can EPA help the States?
- Next Steps



National Scope of Nutrient Problem

- Well Documented Problem and Impacts, E.g.:
 - EPA: Science Advisory Board (2007), Wadeable Streams and Lakes Assessments (2006, 2008), National Coastal Condition Report III (2008)
 - National Research Council: Mississippi River Water Quality (2008), Urban SW (2008)
 - USGS: Impact of Nutrients on Groundwater (2010), SPARROW Loadings (multiple)
 - Many published articles, State and university reports
 - State EPA Nutrient Innovations Task Group (NITG) *Call to Action* Report
- 14,000 Nutrient-related Impairment Listings in 49 States...an underestimate
 - 2.5 Million Acres of Lakes and Reservoirs & 80,000 Miles of Rivers and Streams
- >47% of Streams have Med to High P; >53% have Med to High N
- 168 Hypoxic Zones in U.S. Waters
- 78% of Assessed Continental U.S. Coastal Area Exhibits Eutrophication Symptoms
- Public Health Risks – Contaminated Drinking Water is Significant & Costly
 - Rate of nitrate violations in community water systems doubled over past 7 years

Sources: Key Facts



Nitrogen and phosphorus pollution comes from many different sources

- **Municipal Wastewater Treatment**
 - Among most heavily regulated sectors in US, treat >18 mil tons of human waste annually
 - >16,500 municipal treatment system permits, ~7% have numeric limits for N or P, 18% monitor for these pollutants
- **Atmospheric Nitrogen Deposition**
 - Regulations in place, more underway
 - These sources can be significant, e.g., in the Chesapeake Bay and Mississippi River watersheds, Atmospheric N accounts for 21% of the source contributions
- **Urban Stormwater**
 - 80% of U.S. pop lives on 10% of land, urban pop impacting coastal areas
 - 50% of existing urban landscape will be redeveloped by 2030, and additional 30% of currently undeveloped land likely to be developed
- **Agricultural Livestock**
 - \$130 Billion Industry, >1 bil tons of manure annually
 - Substantial Production is Largely Unregulated by CAFO Rule
- **Agricultural Row Crops**
 - \$120 Billion Industry, in many areas a significant source of N&P
 - Ag SW Runoff and Irrigation Return Flows Exempt from CWA, Variable Controls at State Level

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Why a Framework Now?

Nitrogen and Phosphorus Pollution

- Serious problem that is getting worse; potential to become one of the costliest and most challenging environmental problems
- Growing population = more N and P pollution from urban stormwater, municipal and industrial wastewater discharges, air dep., agriculture
- To protect public health and the environment, need to act *now* to reduce N and P loadings -- while states continue to develop numeric nutrient criteria and standards
 - Since 1998, EPA has encouraged states to develop numeric nutrient criteria to gauge N and P pollution and develop and implement appropriate solutions

Framework: Guiding Principles

- **Results, results, results:** build from existing state work but accelerate progress and demonstrate clear results
- Encourage a collaborative approach between federal partners, states, and stakeholders
- States need flexibility to achieve near-term reductions in N and P pollution while they make progress on their long term strategies

Framework Elements:

Assessment and Prioritization

- Prioritize watersheds on a statewide basis for nutrient loading reductions
 - Estimate N & P loadings delivered to waters in all major watersheds across the state at HUC8 scale or smaller
 - ID watersheds that account for substantial portion of urban and/or ag
 - ID targeted/priority HUC12 or similar watersheds for targeted N & P load reduction activities, considering receiving water problems, public and private drinking water supply impacts, nutrient loadings, opportunity to address high risk nutrient problems, or other related factors
- Set watershed load reduction goals based upon best available information
 - Set numeric goals for loading reductions for each targeted/priority HUC12 that will collectively reduce the majority of N & P loads from ID'd HUC8

Framework Elements:

ID and Implement Metrics, Measures, and Practices to Reduce Loads

- Ensure Effectiveness of Point Source Permits in Targeted/ Priority Sub-watersheds
 - Municipal and Industrial Wastewater Treatment Facilities
 - Concentrated Animal Feeding Operations (CAFOs) that discharge
 - Urban Stormwater
- Agricultural Areas
 - Partner w/ Federal & State Agricultural partners, NGOs, landowners
 - Consider innovative approaches (e.g., stewardship initiatives, markets)
 - Accelerate adoption of the most effective conservation practices where they are most needed
- Reduce Stormwater Runoff and Septic System Impacts
 - Use state, county and local government tools in communities not covered by the MS4 program to address runoff (including LID/GI approaches) and septic systems, consider limits on P use

Framework Elements:

Accountability and Transparency

- Accountability and Verification Measures
 - Identify which tools will be used within targeted/priority sub-watersheds to assure reductions will occur
 - Verify that load reduction practices are in place
 - Assess/demonstrate progress in implementing and maintaining management activities and achieving load reductions goals
- Annual public reporting of implementation activities and biannual reporting of load reductions and environmental impacts associated with each management activity in targeted watersheds
 - Establish process to annually report for each watershed
 - Share annual report publically on the state's website with request for comments and feedback for an adaptive management approach

Framework Elements:

Numeric Criteria

- Develop work plan and phased schedule for developing numeric criteria for classes of waters (lakes/reservoirs, rivers/streams, and estuaries)
 - Should contain interim milestones, e.g., data collection, data analysis, criteria proposal, and criteria adoption consistent with the CWA
 - Reasonable timetable: complete numeric N & P criteria for at least one class of waters in accordance with a robust, state-specific workplan and phased schedule
- Fundamental goal of the approach is for states to develop numeric WQS on a longer but reasonable schedule while making progress on reducing loads in the near term

How can EPA help?

- Federal Resources
- Technical Assistance
- Planning Tools



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Potential Federal Resources

- US EPA –through the State Water Quality Agencies
 - Water Quality Management Planning – Section 604(b)
 - Water Pollution Control Program Grants – Section 106
 - Nonpoint Source Implementation Grants – Section 319
 - State Revolving Fund Program
- USDA Farm Bill Conservation Programs
 - CIG, EQIP, CRP, CCPI, WREP...
- USGS (Cooperative Monitoring Program – state contracts with USGS for water quality monitoring)
- Department of the Army (USACE: 1135, 204, 206)

EPA Technical Assistance: N and P Pollution Data Access Tool (NPDAT)

- Consists of a geospatial viewer, introductory website, and data download tables, available at:
www.epa.gov/nutrientpollution/npdat
- Generally contains “Pre-assembled” data that is publicly available elsewhere
 - Provides streamlined access to these data in one place, in commonly-used formats
- Supports states as they consider
 - Extent and magnitude of N and P pollution
 - Water quality problems and vulnerabilities related to this pollution
 - potential pollution sources

Next Steps

- EPA Regions work with interested states on their strategies for reducing N&P pollution
- Convene series of meetings with State co-regulators
 - Workshop to share innovative State approaches for using numeric criteria and alternative/complementary approaches to protect waters, discuss pros/cons of these approaches, explore options for potential wider use of these approaches in CWA decision making
 - As follow up to the Nutrient Innovations Task Group (NITG) *Call to Action* Report, convene a group of State and EPA co-regulators to discuss implementation challenges and opportunities to implement programs flexibly to support strong incremental progress/adaptive management towards long-term goals